



FOREST PEST MANAGEMENT

Pacific Southwest Region

Report No. 83-23

3430 Evaluation
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EVALUATION OF MORTALITY IN HEART ROCK AND BIG JOHN TIMBER SALES, BIG VALLEY RANGER DISTRICT, MODOC NATIONAL FOREST

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ABSTRACT

Heart Rock and Big John Timber Sales cover about 17,000 acres on the Big Valley Ranger District. Big John Timber Sale was sold 6/22/76 and was scheduled to terminate 3/31/83, but a 2-year extension was requested. Heart Rock Timber Sale was sold 8/17/77 and terminates 3/31/85. Continual mortality of ponderosa and Jeffrey pine has occurred in the sale areas. Black stain root disease and overstocking have allowed numerous species of cambium-feeding insects to attack and kill the weakened trees. The mortality has been substantial but is not catastrophic as defined in the sales contracts. No single species of insect is currently approaching an outbreak. Thus, current tree mortality can not be captured under sales contract clause CT2.134-Insect Control.

INTRODUCTION

Big John Timber Sale was sold 6/22/76 and was scheduled to terminate 3/31/83, but a two-year extension was requested. Approximately 6.7 MMBF remains to be logged out of the original contract volume of 13.4 MMBF. Heart Rock Timber Sale was sold 8/17/77 and terminates 3/31/85. Approximately 8.7 MMBF remains to be logged out of an original 13.5 MMBF. Both sales are 100 percent ponderosa and Jeffrey pine and cover about 17,000 acres in the southeastern part of the Big Valley Ranger District.

Continuing mortality of marked and unmarked trees has occurred in both sales. Heart Rock and Big John are both pre-scaled sales. If the value of timber is reduced by death and bluestain between the time the timber is marked and when it is harvested, the value reduction must be absorbed by the Government.

Forest Supervisor Glenn Bradley requested an evaluation of the sales to determine if insect populations were approaching epidemic levels, which would allow the mortality to be captured under contract clause CT2.134 - Insect Control. The sales were evaluated on 7/19/83 by Dave Schultz and James Allison from FPM, Jerry Jensen from the S.O., and Steve Torres and Vern Neal from the Big Valley Ranger District.

OBSERVATIONS

The sales consist of numerous scattered parcels. A scattered overstory of old growth Jeffrey and/or ponderosa pine exists in many portions of the sale. The areas which are a Dunning Site 3 or 4 have an understory of ponderosa and/or Jeffrey pine thickets. Areas which are a low Dunning site 4 or 5 have a significant component of western juniper.

The sales were marked for various combinations of overstory removal and high risk-sanitation. There were generally several 30-40 in. dbh overstory pine trees marked per acre which contained about 7,000 board feet per acre. Occasional old growth overstory trees were unmarked. Both marked and unmarked overstory trees have been dying for at least 3 years, based on their state of deterioration. Dead overstory trees showed evidence of attack by the mountain pine beetle, Dendroctonus ponderosae; western pine beetle, D. brevicornis; red turpentine beetle, D. valens; and California flatheaded borer, Melanophila californica. Some live overstory trees had pitch tubes from apparently unsuccessful attacks from red turpentine beetle up to heights of about 10 feet and mountain pine beetle throughout the lower bole. Increment cores from live overstory trees under beetle attack showed growth rings in the outer inch which were too narrow to count with the unaided eye. Slow growth in the overstory is probably related to competition with the dense understory.

Mortality has also occurred in seedlings, saplings and small poles in the understory due to attacks by weevils; twig beetles, Pityophthorus spp.; pine engravers, Ips spp.; and mountain pine beetle. Pitch tubes from apparently unsuccessful mountain pine beetle attacks were extremely common on 3- to 6-inch dbh ponderosa pine in thickets.

Over half of the widely scattered mortality spots examined had at least one tree infected with blackstain root disease, caused by Ceratocystis wageneri. The disease appears to be widespread in both sales and is affecting all size classes of trees. It and overstocking are probably the underlying cause for the high, sustained rate of mortality associated with the numerous species of bark and engraver beetles in the area.

MANAGEMENT ALTERNATIVES

1. Do Nothing. This assumes that the present sales contracts will run through March 1985 and then terminate. The recent mortality is estimated to be about one overstory tree containing about 2,000 b.f. per

acre per year. This has resulted in a loss of about 300,000 b.f. per year throughout the sales during the recent years of above average precipitation. If precipitation is not above average during the next two years, overstory mortality may be expected to increase substantially. After the sales terminate, there will be relatively few overstory trees remaining. Most of the understory is below commercial size, densely overstocked and contains black stain root disease infection centers. Overstocking will cause slow growth and allow bark beetles to kill some patches of trees. Black stain root disease centers may continue to expand until they reach host free barriers. Some trees will reach merchantable size because they have escaped root disease infection or bark beetle attack. The site will be underutilized and have continual mortality for the foreseeable future. The Forest should plan on the 17,000-acre sale area producing no further commercial timber after the current sales terminate, because overstocking and black stain would perpetuate conditions causing high chronic mortality, much of it involving insects.

2. Rehabilitate sites after programmed sales terminate. There should be at least an additional 300,000 b.f. of mortality, and possibly more, by 3/31/85. After the sales terminate it would be possible to rehabilitate the sales areas if funds are available. Some of the treatments are relatively expensive. The funds collected for the current sales may not be sufficient to carry out the following steps:

A. Survey all parcels in the sales for black stain root disease. Large scale natural color aerial photography may detect potential centers but ground crews are necessary for confirmation. Logging obscures many characteristic root disease symptoms and makes detection difficult. Surveys should begin as soon as possible for maximum effectiveness.

B. Cut all ponderosa and Jeffrey pines in the black stain root disease centers plus a 75-foot buffer of green trees beyond the last tree showing any crown or basal symptoms. If centers are close to each other this will produce a clearcut.

C. Revegetate the site with appropriate species. Because there are no commercial tree species native to the sales areas which are not black stain hosts, the centers can not be planted until the fungus dies out of the roots of the cut trees. This would generally take three years after cutting, and possibly up to five years. An alternative to planting trees in clear-cut areas is to dedicate them to grazing for a five-period following tree removal. When tree planting is eventually undertaken, it can be expected to be difficult, because of harsh site conditions, pocket gophers, and competing vegetation.

D. Thin uninfected areas to increase growth and prevent bark beetle attacks. Most of the trees to be removed are below merchantable size so this would have to be a precommercial thinning.

3. Terminate current contracts and re-mark sales. If the current contracts could be terminated, it would be possible to write new prescriptions incorporating some of the control measures in alternative 2. The advantages would be that some work might be accomplished in conjunction with the new sales and that adequate funding to rehabilitate the sites could be collected.

4. Emphasize resources other than timber in root disease centers. There is an opportunity for a temporary increase in range production. Herbaceous growth increases as trees die out in a center. As a center enlarges and becomes barren, the black stain fungus may die out in the middle and pine can seed in and survive in the middle. The continual mortality will be a source of wildlife snags and fuelwood.

MAILING LIST #4 (TIMBER STAND I&D's)

Big John Timber Sales, Big Valley Ranger District, Modoc National Forest
AND 3430 memo of 9/23/83 to: FS, Modoc NF

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9/23/83

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